



Super head+R Kit Instruction Manual

Item No.: 0 1 - 0 3 - 0 1 1 5

Model types with applicable cylinder heads and frame Nos

KSR110 : KL110A-000001 ~

KLX110 : LX110A-000001 ~

: LX110A-A08133 ~

KLX110L : LX110D-A72046 ~

- Thank you for purchasing one of our TAKEGAWA's products. Please strictly follow the following instructions to install and use the products.
- Before fitting the products, please be sure to check the contents of the kit. If you have any questions about the products, please contact your local TAKEGAWA dealer.

~ Features ~

This is a Super head for exclusive for use with KSR110 / KLX110. We have enlarged the valve top diameters both for intake and exhaust. And we have designed the valve angle of nip and port shape exclusively for these model types. We have incorporated roller bearings into the slipper of a valve rocker arm. The increased weight caused by incorporation of bearings is offset by adoption of an aluminium-forged rocker arm which consequently brings about power increase at a high rotary area as a result of the synergy effect.

Please read the following before the installation.

Please note that, in some cases, the illustrations and photos may vary from the actual hardware.

We do not take any responsibility for any accident or damage whatsoever arising from the use of the products not in conformity with the instructions in the manual.

This kit is designed for exclusive use in the above-mentioned model types with specified applicable frame Nos only, and in the vehicles equipped with the special bore-up exclusively for this kit. Please take note that this kit cannot be mounted on other types of motorcycles or compatible with other bore-up than the special one for this kit.

Installation of this product requires removal and reinstallation of an engine, and disassembly of a clutch. Please prepare genuine service manual for the above-mentioned applicable models, and work with enough care following instructions in the service manual. Besides, this instruction manual, as well as service manual, is prepared for those who have acquired basic skill and knowledge in tuning. We recommend those who are technically inexperienced or without right tools to ask a technically-trustworthy specialist shop to do the work for you.

We shall be held free from any kind of warranty whatsoever of products other than this product if the glitch takes place on the other products than this one after the installation and use of this product.

You are kindly requested not to contact us about the combination of our products with other manufacturers'.

A serial number is stamped on the cylinder head. You may be requested to inform us of the number when ordering parts.

Some of bolts and nuts will be reused. However, be sure not to use the worn-down or severely-damaged ones, which please do replace with new ones.

Do not use liquid seals, which may oppilate oil's passage; it may break the engine in the worst case.

Be sure to always use premium unleaded petrol. And make sure to check what kind of gasoline is remaining in the fuel tank. Whenever regular gasoline is left in the fuel tank, always replace it with high-octane gasoline.

Determine the heat value of a spark plug depending on how much it is burnt.

Please be informed that what we can safely say is that the ignition system of this kit is compatible with ours and stock ignition systems, because no data is available with us on the compatibility with other ignition systems. So never use this kit together with any other ignition system to avoid technical troubles.

Install an oil cooler when necessary.

Engine oil must be API SF or higher class, such as SAE 10W-40 / 15W-50, which are our recommendations.

Change the sprocket with the one to meet the vehicle's power and specifications.

In case you have purchased this kit for use just as a cylinder head kit, you cannot use this kit in this way. If you have not purchased "special engine parts compatible with this kit", please purchase separately the special parts referring to the "Reference data on bore-up kit."

This kit is only compatible with those engine parts recommended by us. So, please replace the parts not recommended by us with those of our recommendations.

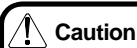
This product is designed for exclusive use on the closed course, but not for use on a public road. And always try to drive your motorcycle at a legal speed, abiding by the laws.

Quick starting and sudden acceleration

Idling, sudden acceleration, and sudden engine braking will put a heavy load on the engine, which may result in crank shaft damage and engine breakage in the worst case.

Please be informed that, mainly because of improvement in performance, design changes, and cost increase, the product specifications and prices are subject to change without prior notice.

This instruction manual should be retained for future reference.



Caution

The following show the envisioned possibility of injuries to human bodies and property damage as a result of disregarding the following cautions.

- This product is designed for exclusive use on the closed course, but not for use on a public road. And always try to drive your motorcycle at a legal speed, abiding by the laws.
- Do the work only when the engine and exhaust system are cold at below 35 degrees C to avoid burns.
- Prepare appropriate tools and work properly to avoid the breakage of parts or injuries.
- As some products and frames have sharp edges or protruding portions, work with your hands protected to avoid injuries.
- Always use new gasket and seals. (Worn or damaged parts may cause engine troubles.)

Warning The following show the envisioned possibility of human death or serious injuries to human bodies as a result of disregarding the following cautions.

- Those who are technically unskilled or inexperienced are required not to do the work. (Improper installation due to unskilled technique or lack of knowledge could lead to parts breakage and consequently to accidents.)
- Before doing work, place the motorcycle on level ground to stabilize the position of your motorcycle for safety's sake. (Otherwise, your motorcycle could overturn and injure you while you are working.)
- Always start the engine in a well-ventilated place, and do not turn the engine on in an airtight place. (Otherwise, you will suffer from carbon monoxide poisoning.)
- As gasoline is highly flammable, never place it close to fire. Make sure that nothing flammable is near the gasoline. (It may cause a fire.)
- Always use a torque wrench to screw bolts and nuts tight and securely to the specified torque. (Improper torque could cause these parts to get damaged or fall off.)
- Never use the parts unspecified by us. (This may lead to parts breakage and consequent accidents.)
- If you find damaged parts when checking and performing maintenance of your motorcycle, do replace them with new ones. (The continued use of these damaged parts could lead to parts breakage and accidents.)
- When you notice something abnormal with your motorcycle while riding down a road, stop riding immediately and park your motorcycle in a safe place. (Otherwise, the abnormality could lead to accidents.)
- Before riding, always check every section for slack in parts like screws. If you find slack ones, screw them securely up to the specified torque. (Or improper torque may cause parts to come off, leading to accidents.)
- Check or carry out maintenance of parts correctly according to the procedures in the instruction manual or a service manual. (Improper checking or maintenance could lead to accidents.)
- Fuel must be high-octane gasoline. (Otherwise, troubles such as engine knocking may cause accidents.)

Cautions before riding:

About fuel:

Whenever regular gasoline is remaining in the fuel tank, always replace it with high-octane gasoline.

Change of a sprocket:

The installation of this product will increase the power of your vehicle. So use of a normal sprocket will result in severe wears of parts because of too low gear, not only adversely affecting the engine life, but also breaking the engine in the worst case. Please replace the sprocket with the high-geared one.

This kit cannot function on its own. Referring to the attached sheet, please purchase a bore-up kit for exclusive use in this kit. This does not apply to the case where you have purchased a full kit.)

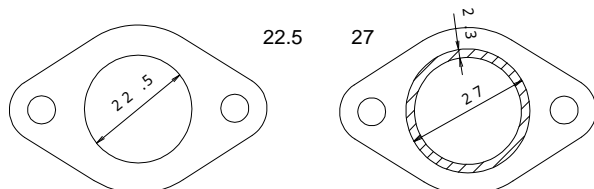
Others:

Oil cooler:

The installation of this product increases the heat release value of the engine, set off by the increase in power. For a long-time high-load running, we recommend you to install an oil cooler kit which keeps oil at appropriate temperatures and prevents such troubles as oil film shortage at high temperatures.

Carburetor manifold:

If you use a manifold, compatible with S-Stage, with a port diameter of 22.5 on the side of an inlet pipe, there will be a bump because of the difference in diameter between the cylinder head and the manifold. Enlarging the manifold's port diameter on the manifold side will provide you with smoother output characteristics.



Upper limit of revolutions:

Upper limit of revolutions varies depending on the installed cam shafts, etc. Referring to the camshaft comparison graph on page A3, install a revolution counter to make sure that you drive the engine at revolutions below the upper limit.

Take note that idling and sudden acceleration in the 1st and the 2nd gears particularly tend to exceed the upper limit of revolutions. Over revolutions will result in nonsmooth revolutions of the engine, not only adversely affecting the engine life, but also breaking the engine in the worst case.

Titanium valve spring retainer (optional)

This Super Head has optional titanium valve spring retainers. Titanium retainers are about 30% lighter than steel retainers. The surface is treated with a special coating of which hardness is HV1000 above for added shock-resistance and wear-resistance. Item No.01-12-084 (2 pcs)



A serial number is stamped on the cylinder head just for the sake of administration. You may be requested to inform us of the number when ordering repair parts. In case you are not able to order parts because you do not have the repair parts numbers or for other reasons, please place an order in the following way.

Make a note of the number stamped on the left side of the cylinder head. Head No.: KL1-00001

Example of ordering Super Head Kit, repair part
Head No.: KL1-00001 Intake valve
Qty:1



For those who have purchased a cylinder head as a single item, some products are available from us to meet engine displacement and other requirements. Please study to install the products, referring to "Reference data on bore & stroke-up kit." For more details about the products or queries, please contact your dealer.

Engine parts of our recommendation:

This kit is compatible only with the engine parts of our recommendations. Therefore, please replace those parts not recommended by us with those parts of our recommendations.

Recommended Part			
Clutch	Heavy-duty clutch spring kit	02-01-0296	
Ignition system	Stock C.D.I.		
Carburetor	Keihin PE28 carburetor kit	KSR110	03-05-3272
		KLX110	03-05-3292
	Mikuni VM26 carburetor kit	KSR110	03-05-3273
		KLX110	03-05-3293

About cam shaft

This kit does NOT include a camshaft. You need to have a camshaft for this Cylinder Head works.

There are some available types of camshafts in order to match your riding purpose or displacements.

Please select referring to the chart or the graph.

Optional camshafts

Several types of camshafts are available. Please choose a camshaft to suit your riding purpose and displacements.

Camshafts Number	KLX110/KSR110 Camshaft w/auto-decompression
S-15D	01-08-0119
S-20D	01-08-0120
S-25D	01-08-0121
S-35D	01-08-0122

Camshafts Number	KLX110/KSR110 Camshaft w/auto-decompression
S-15	01-08-0015K
S-20	01-08-0020K
S-25	01-08-0025K
S-35	01-08-0030K

Camshafts Number	KLX110L Camshaft w/auto-decompression
S-15D	01-08-0132
S-20D	01-08-0133
S-25D	01-08-0134
S-35D	01-08-0135

Each Bore up kit includes a camshaft. Optional camshafts are available other than the supplied camshaft.

Model	The included camshafts in the Bore up Kits		Part No.
KLX110	125cc / 138cc	S-15D	01-08-0119
KLX110	178cc	S-20D	01-08-0120
KSR110	125cc / 138cc / 178cc	S-20D	01-08-0120
KLX110L	125cc / 138cc / 178cc	S-20D	01-08-0133

About Camshafts Number

The bigger the numbers of XX / YY are, the wider the durations are. With these camshafts, the output power will produce more to high rpm range. While, the smaller the numbers are, the narrower the durations are. With these camshafts, the output power will produce more to low-to-mid rpm range. We supply the suitable camshaft depending on the displacements.

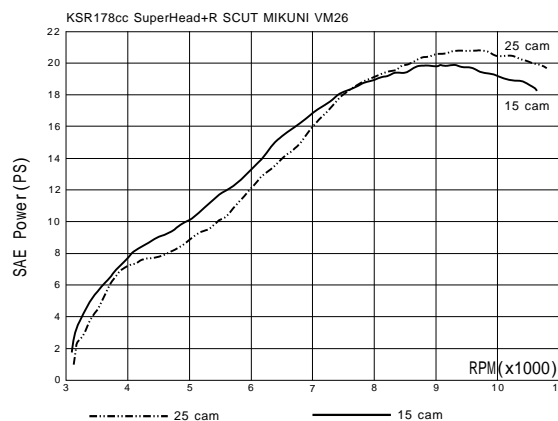
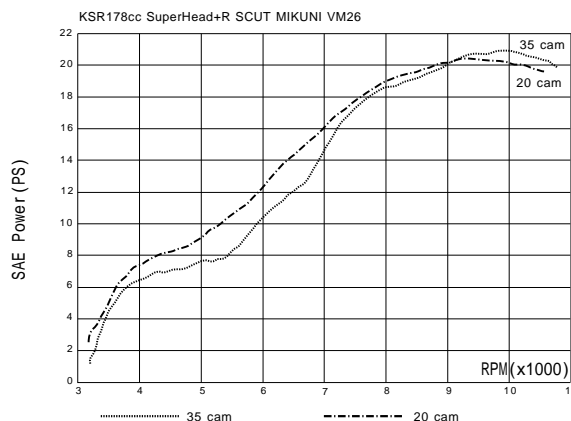
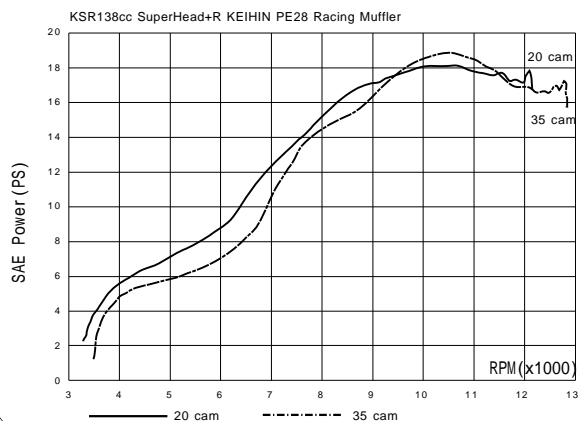
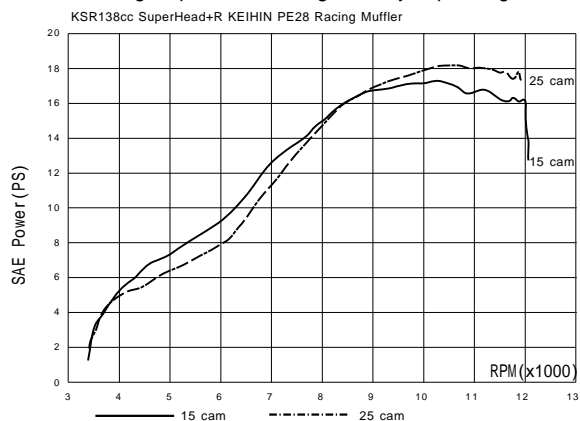
When choosing the optional camshafts, please choose the camshaft referring to the camshaft data chart to suit your riding purpose.

Also, the engine output will vary significantly depending on the using exhaust system, length of inlet pipe, carburetor diameter, compression ratio, ignition system, ignition timing, fuel or natural phenomenons such as ambient temperature or atmospheric pressure.

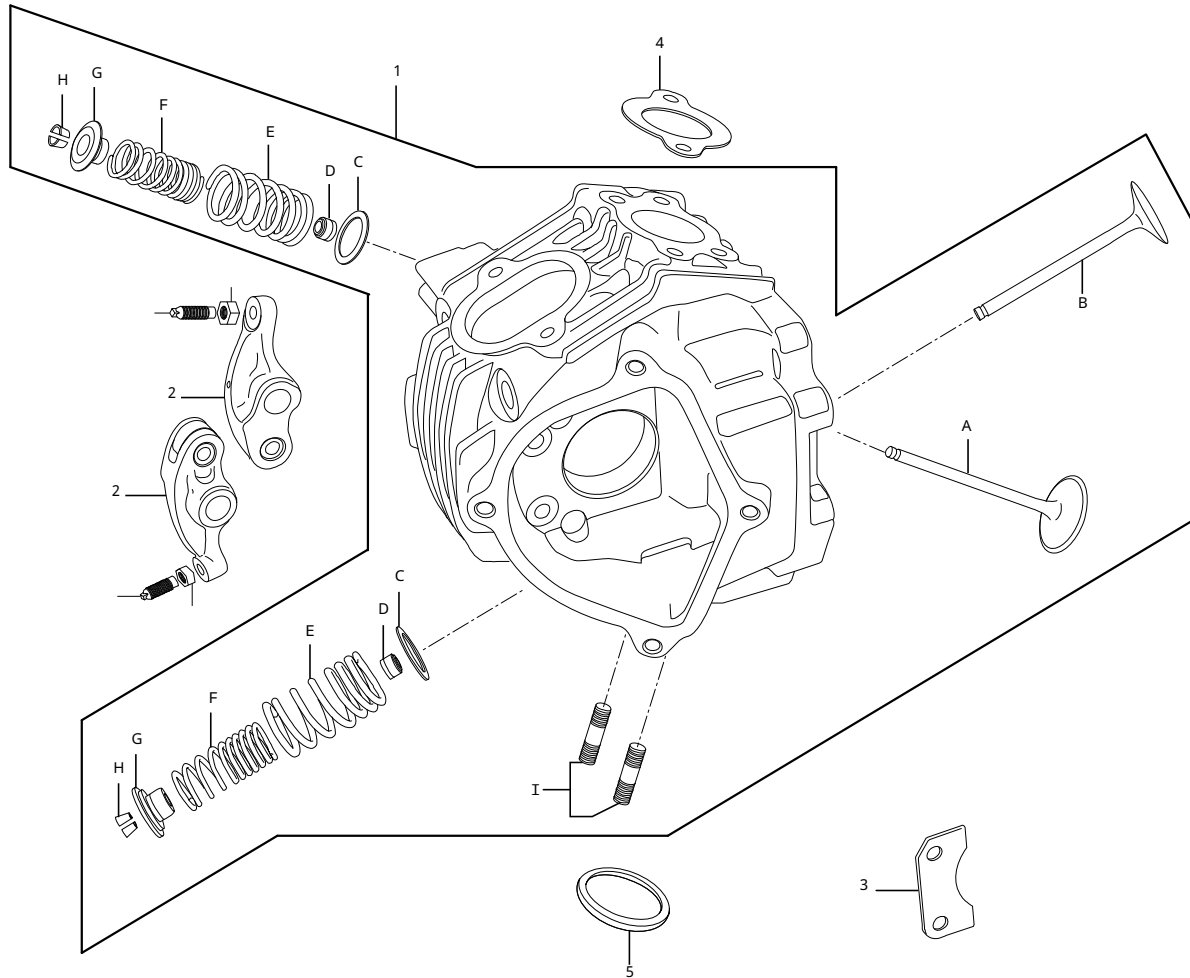
Lists of camshaft comparison data

NB) As these are the data measured on a Dyno Jet, the data differ from the actual driving. Please see them just as a reference.

The engine power varies significantly depending on the temperatures.



~ Kit Contents ~



Please order repair parts with the Repair Part Item No.

Without the repair part item No., we may not be able to provide the correct parts.

Some parts are only available as a set. Please order them with the set number.

No.	Part Name	Qty	Repair Part No.	In packs of
1	Cylinder head COMP.	1	06120-KL1-T00	1
2	Rocker arm COMP.	2	14431-SPH-T01	1
3	Cam stopper plate	1	12211-KL1-T00	1
4	Manifold gasket	1	00-03-0007	2
5	Exhaust pipe gasket	1	00-01-0035	2
	Alumi Special (5 g)	1	00-01-0001	1

No.	Part Name	Qty	Repair Part No.	In packs of
A	Intake valve	1	14711-KL1-T01-F	1
B	Exhaust valve	1	14721-KL1-T01-F	1
C	Valve spring outer seat	2	00-01-0002	2
D	Valve stem seal	2	00-01-0015	2
E	Valve spring outer	2	01-12-0106 (SET)	2
F	Valve spring inner	2		2
G	Valve spring retainer	2	00-01-0078	2
H	Valve cotter	4	00-01-0018	4
I	Stud bolt	2	00-01-0136	2

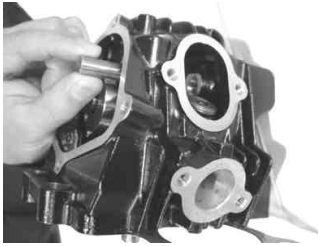
Over-sized valve guide for repair		In packs of
00-01-0006	Valve guide O / S	1

SPECIAL PARTS TAKEGAWA Co.,Ltd.

3-5-16 Nishikiorihigashi Tondabayashi Osaka Japan TEL: 81-721-25-1357 FAX: 81-721-24-5059 URL: <http://www.takegawa.co.jp>

~ Cylinder Head Installation Procedures ~

Remove a rocker arm shaft of the original cylinder head, and an adjusting bolt / nut on the rocker arm.



Apply engine oil to the removed adjusting bolt, which please attach to the rocker arm of the kit.



Attach the rocker arm to the super head. Put the rocker arm for the intake into the tappet hole on the exhaust side of the super head. And fix the rocker arm shaft after applying molybdenum solution to it.

And attach the rocker arm for the exhaust by the same token.

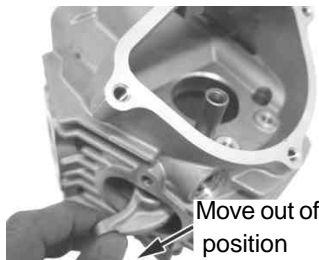


Fix the special cam shaft. Apply engine oil to the bearing.



Pull out the rocker arm shaft on the intake side. And Move the rocker arm on the intake side out of place toward the tappet hole and attach a special cam shaft to the cylinder head. And attach the rocker arm on the intake side and rocker arm shaft. At this point, set the position of the camshaft tops for both intake and exhaust so they face toward the combustion chamber.

(As the bearings of the cam shaft and rocker arm interfere with each other, it is necessary to move the rocker arm out of position and attach the cam shaft.)



From the original cylinder head, detach two pan screws which are holding a cam stopper.



Fix a cam stopper plate of the kit to the super head with two pan screws which have just been unfastened from the original cylinder head. Fix the stopper plate, aligning both ends of the cam stopper with a rocker arm shaft notch. And tighten it to the specified torque.

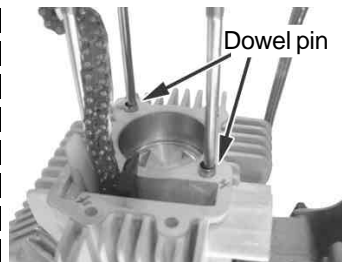
⚠Caution: Never fail to follow the specified torque.

T=8 N · m (0.8 kgf · m)

Align the mounting point. Align the mounting point.

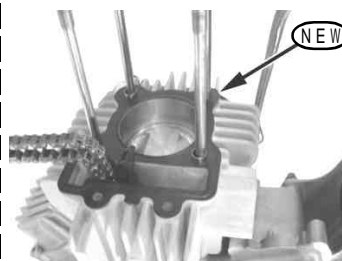


Set the dowel pin in the dowel pin hole on the cylinder.



Degrease well the upper surface of the cylinder.

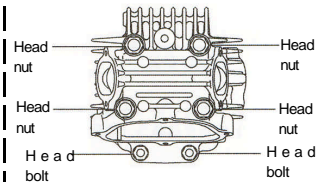
Attach a cylinder head gasket of the kit to the cylinder.



Setting the piston to be at top dead center, attach the cylinder head.



Slightly apply Alumi Special, the heat-resistant lubricating agent, to threaded portions of the cylinder head stud and head bolt, and loosely tighten the head nut and head bolt.



Tighten 4 head nuts and 2 head bolts diagonally in a few steps to the specified torque in the order indicated in the figure below.

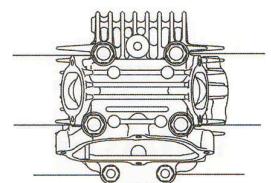
⚠Caution: Never fail to observe the specified torque.

For head bolt:

T=12 N · m (1.2 kgf · m)

For head nut:

T=22N · m (2.2 kgf · m)



Reinstall the oil pipe in the same way as it was installed, and tighten the banjo bolt to the specified torque.

⚠Caution: Never fail to observe the specified torque.

T=15N · m (1.5 kgf · m)



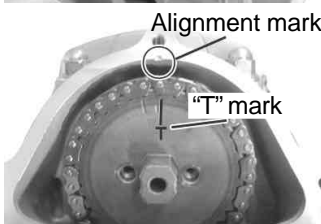
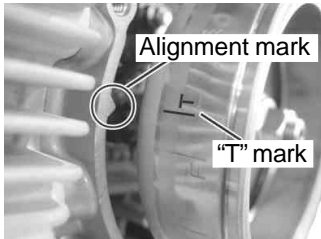
Fix the bolt which is to clamp the oil pipe, and tighten it.

⚠Caution: Never fail to observe the specified torque.

T=5.2N · m (0.53kgf · m)

KSR110**KLX110****Install the camshaft without auto-decompression.**

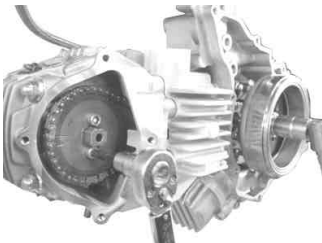
Attach the cam chain to the cam sprocket. When the "T" mark on the flywheel is aligned with the alignment mark on the crankcase, align the "T" mark on the cam sprocket with the alignment mark on the cylinder head.



Fasten the cam sprocket to the cam shaft with two screws to the specified torque.

⚠Caution: Never fail to observe the specified torque.

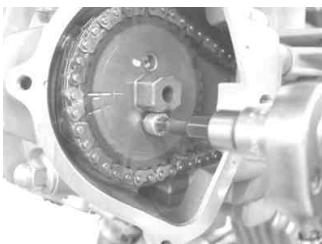
T=12 N · m (1.2 kgf · m)

**KSR110****KLX110****Install the camshaft with auto-decompression.**

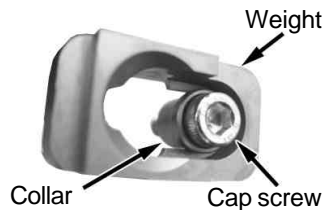
Fasten and tighten the 6x12 cap screw on the exhaust side of the cam sprocket to the specified torque.

⚠NOTE: Be sure to follow the specified torque.

Torque: 12 N · m (1.2 kgf · m)



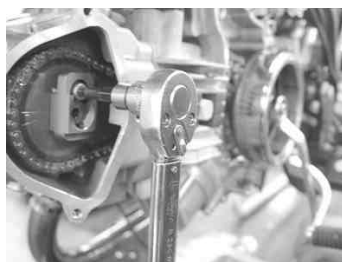
Put the 6x20 cap screw into the collar and put them into the weight.



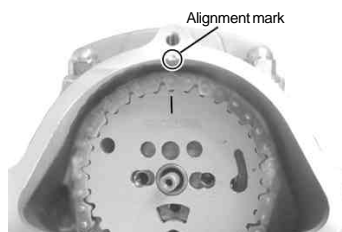
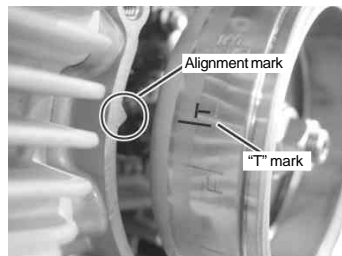
Put the 6x20 cap screw into the upper hole on the cam sprocket, and tighten the screw to the specified torque.

⚠NOTE: Be sure to follow the specified torque.

Torque: 12N · m (1.2 kgf · m)

**KLX110L****Install the camshaft with auto-decompression.**

While aligning the "T" mark of flywheel and the notch of crankcase, install the cam chain on the cam sprocket included in the Camshaft Kit. (NOTE: CANNOT use stock cam sprocket.)



Install the decomp guide in such a way that the thicker side of the screw mounting is up (to IN), the thinner side is down (to EX), and attach a cap screw 6 x 12 to the down side (the EX side). Then tighten them to the specified torque.

⚠NOTE: Be sure to follow the specified torque.

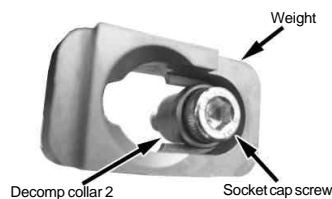
Cap screw 6 x 12

:Torque: 8N · m (0.8 kgf · m)

Make sure that the direction of decomp guide must be correct.



Put a socket cap screw 6 x 20 into the decomp collar 2, and put them in the weight.

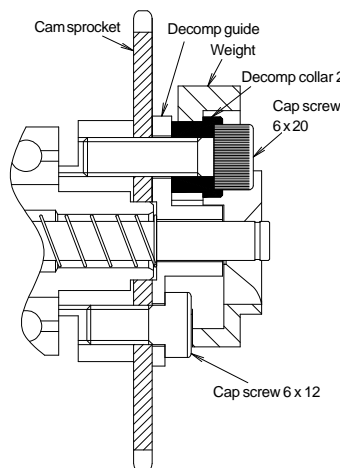


Install successively with the decomp guide, weight, and decomp collar 2 referring to the drawing, and tighten them to the specified torque.

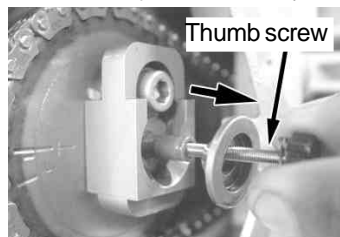
⚠NOTE: Be sure to follow the specified torque.

Cap screw 6 x 20

:Torque: 12N · m (1.2 kgf · m)



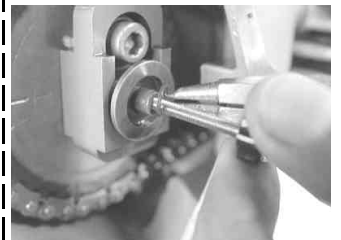
Pass a 6mm snap ring and a plate into the supplied 3x28 thumb screw and attach them to the tip of the shaft that is included in the camshaft COMP. And pull them toward you.



Attach the snap ring in the shaft groove.

⚠NOTE : Do not expand the snap ring more than necessary.

⚠WARNING : Always use a NEW snap ring, and be sure NOT to reuse it.

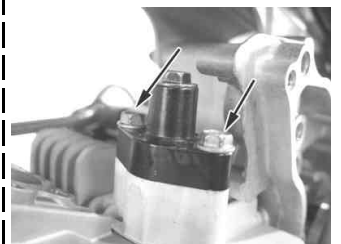


Check that a push rod of a cam shaft chain tensioner is locked.

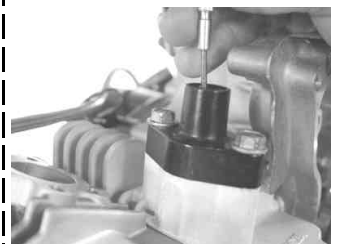
Install the cam shaft chain tensioner with two screws, and tighten them to the specified torque.

⚠Caution: Never fail to observe the specified torque.

T=12 N · m (1.2 kgf · m)



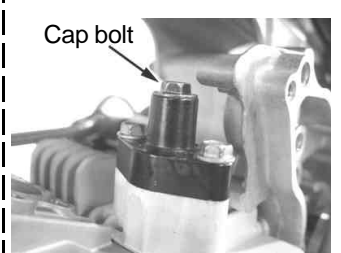
Remove a cap bolt on the cam shaft chain tensioner, and rotate a little bit a stopper on the cam shaft chain tensioner counterclockwise to unlock the push rod.



Install the cap bolt of the cam shaft chain tensioner, and tighten it to the specified torque.

⚠Caution: Never fail to observe the specified torque.

T=5.2 N · m (0.53 kgf · m)



Check that the "T" mark on the flywheel is aligned with the "T" mark on the cam sprocket.

Adjust the valve clearance with an adjusting screw.

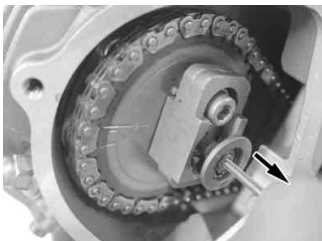
IN:0.05 ~ 0.08 (When cold.)

EX:0.05 ~ 0.08 (When cold.)



In case you install an automatic decompression cam shaft:

When adjusting the valve clearance, leave the shaft, supplied in the camshaft COMP., pulled toward you lest the decompression device operate on the exhaust side.



Tighten the adjusting nut to the specified torque.

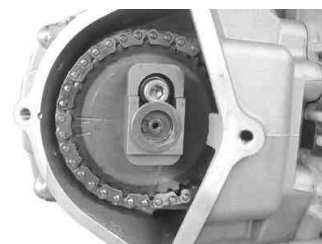
⚠Caution: Never fail to observe the specified torque.

T=8.8 N · m (0.9 kgf · m)



In case you install an automatic decompression cam shaft:

Unscrew the thumb screw.



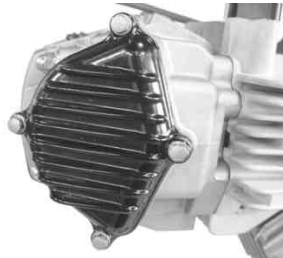
Give the crank shaft two turns counterclockwise to check if the valve clearance changes.

In case it changes, adjust the clearance until it meets the specification.

Apply engine oil slightly to an O-ring on the cam shaft sprocket cover, and fasten the sprocket cover to the cylinder head with four screws to the specified torque.

⚠Caution: Never fail to follow the specified torque.

T=5.2 N · m (0.53 kgf · m)



Apply engine oil slightly to an O-ring on the inspection cap, and fix the inspection cap with two screws to the specified torque.

⚠Caution: Please never fail to follow the specified torque.

T=5.2 N · m (0.53 kgf · m)

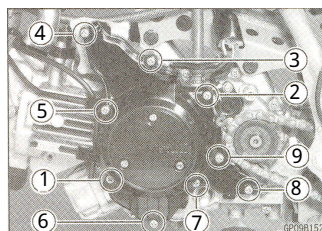


Degrease the mating surface of the generator cover and the crankcase, and attach two dowel pins and a new gasket.

Fix the generator cover with nine bolts to the specified torque in a few steps in the numerical order.

⚠Caution: Never fail to observe the specified torque.

T=5.2 N · m (0.53 kgf · m)



Referring to the service manual, mount the engine onto the frame.

⚠Caution: Please follow the instructions in the service manual.

Fix the carburetor following the kit instruction manual.

Connect a crankcase breather hose.



Connect a connector on the generator cover.



Attach a drive sprocket and a drive chain.



Fix a shift pedal.

⚠Caution: Please follow the specified torque.

T=5.2 N · m (0.53 kgf · m)



Inject engine oil in the specified amounts.



Attach a sprocket cover.

⚠Caution: Never fail to observe the specified torque.

T=5.2 N · m (0.53 kgf · m)



Fix an exhaust muffler referring to its installation procedures.

Engine Starting

Check that an ignition key and a gas cock are turned off.

Continue kicking the starter for a while to circulate the engine oil throughout the engine.

Fix a spark plug.

Slightly apply Alumi Special, heat-resistant lubricating agent, to the threaded portion of the plug, and fasten the plug tightly.

⚠Caution: Never fail to observe the specified torque.

Attach the plug cap to the spark plug.

Wipe out thoroughly the dirt and dust on the engine.

Turn on the gasoline cock and ignition key to start the engine.

⚠Warning: Be sure to start the engine in a well-ventilated place.

See if there is anything wrong including strange sounds.

If nothing wrong is detected, do the running-in of about 30 to 50 km, and then recheck the valve clearance.

⚠Caution: Do the valve clearance rechecking only when the engine and muffler are cold.

Do the running-in again of 100 to 150 km.

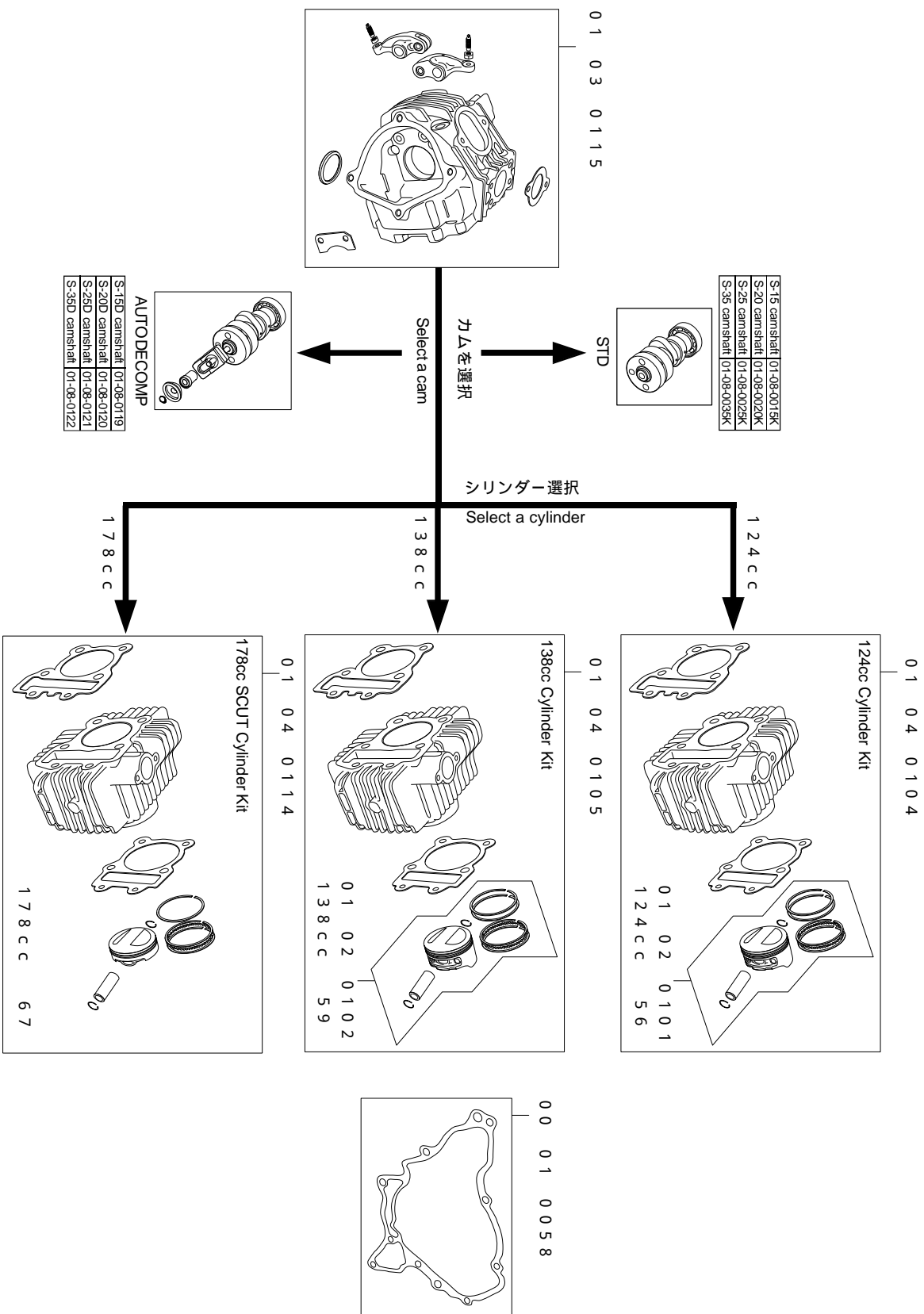
After the running-in, see if there is nothing wrong like strange sounds or blow-by gas.

If something wrong is found, disassemble the engine again to check every part of it.

⚠Warning: Never reuse the unusable parts.

Super head+B

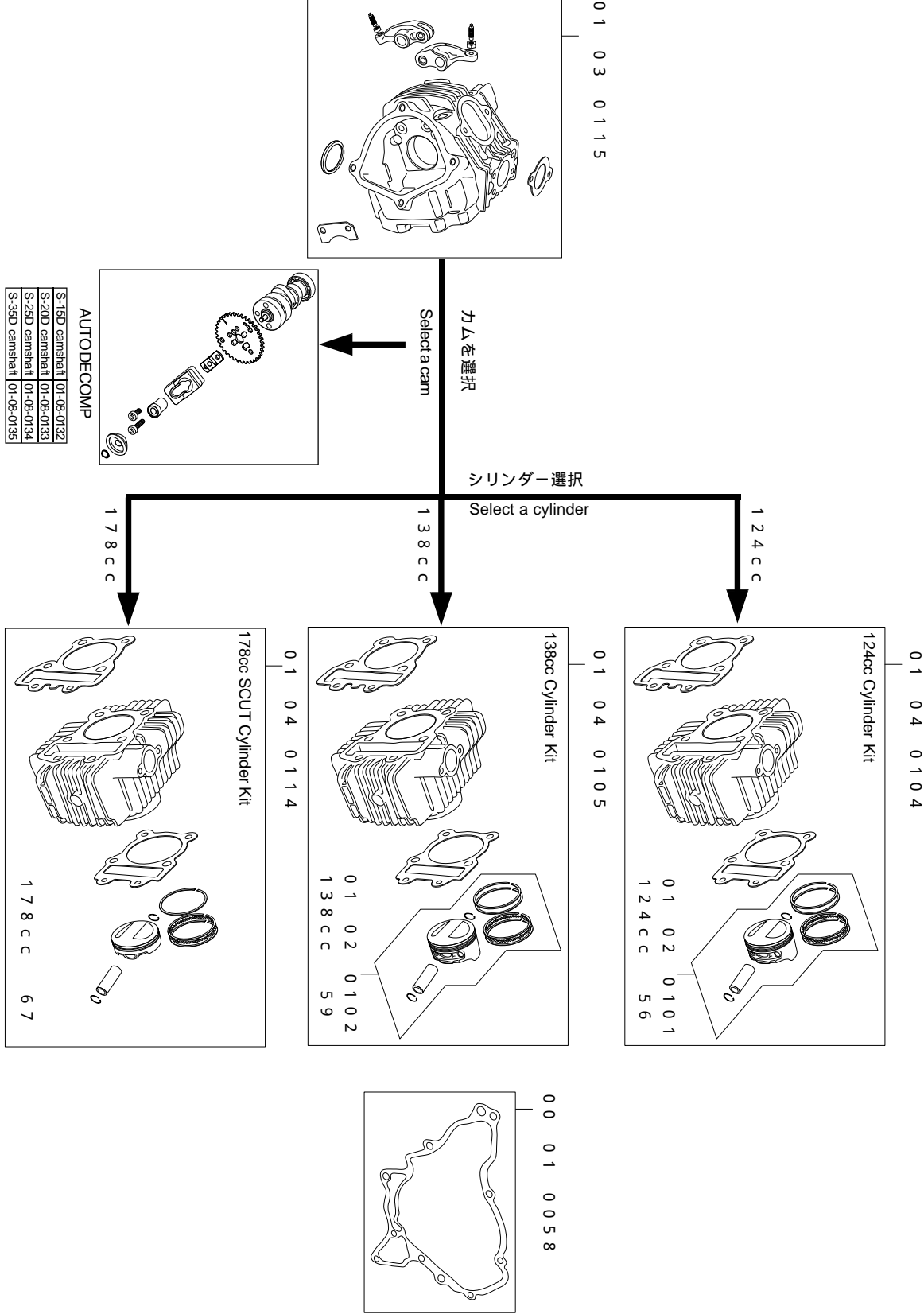
KSR110, KLX110 ボアツプ参照表 (124cc、138cc、178cc)
KSR110, KLX110 Reference data on bore-up kit (124cc, 138cc, 178cc)



01 03 0115 シリンダーヘッドキットのみで購入された場合、この参照表にて専用パーツを検討して下さい。

If you have purchased a cylinder head kit only (Item No. 01-03-0115), please study to install these special parts referring to this reference data.

Super head+R K L X 1 1 0 L ボアアツク参照表 (1 2 4 c c 、 1 3 8 c c 、 1 7 8 c c)
KLX110L Reference data on bore-up kit (124cc,138cc,178cc)



0 1 0 3 0 1 1 5 シリンダーヘッドキットのみで購入された場合、この参照表にて専用パーツを検討して下さい。
If you have purchased a cylinder head kit only (Item No. 01-03-0115), please study to install these special parts referring to this reference data.